

USSR

UDC 539.196

KUDRYAVTSEV, YE. M., and FAYZULAYEV, V. N., Moscow

"The Formation of an Inversion in a Stream of Mixed $\text{CO}_2\text{-H}_2\text{O-N}_2$ Expanding Through A Crack"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, 1973, pp 25-31

Abstract: The vibratory relaxation kinetics are calculated for CO_2 molecules in a $\text{CO}_2\text{-H}_2\text{O-N}_2$ mixture escaping through a "crack" into a vacuum. The crack is a special nozzle with a 120° -angle of exposure. The study of vibratory relaxation was reduced to the solution of kinetic equations corresponding to the most important paths of energy exchange in vibratory-vibratory and vibratory-translational processes. It was found possible to consider the dynamics of a non-equilibrium gas in approximation as the adiabatic movement of a medium with an effective adiabatic index corresponding to a certain degree of "freezing" of the vibratory component of the gases' heat capacity.

This makes it possible to use the solutions of gas dynamic equations corresponding to isentropic gas flow with a constant adiabatic index in the kinetic equations, finding the value of local Mach numbers by numerical integration of the gas dynamic equations.

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KUDRYAVTSEV, YE. M., et al., Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, 1973, pp 25-31

The complete system of relaxation equations was analyzed by Runge-Kutta methods on a M-220 computer. A vibratory-rotational population inversion was found for CO₂ molecules at the 10.6 micron transition, with the rotational temperature assumed equal to the gas temperature. Both Doppler and Lorentz mechanisms of line broadening were considered in calculating the coefficient of amplification, which was found to agree well with experimental values.

The configurations of the gas flow and the locations of various processes are described in detail. It is found that a temperature of approximately 2200°K and a pressure of approximately 20 atmospheres are optimum conditions for maximum amplification, since a further increase in temperature and pressure, while increasing the quantity of excited CO₂ molecules, also increases the relaxation rate. Water vapor is found to significantly accelerate the relaxation processes. The effects on relaxation processes and results of changes in aperture geometry are also discussed.

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USSR

RUSTAKOV, B. R., FAYZULIN, F. G., KON'SHINA, L. N., and SEITNIYAZOV, U. S.,
Uzbek Scientific Research Institute of Medical Parasitology and Helmin-
thology imeni L. M. Isayev

"Some Characteristics of the Epidemiology of Zoonotic Cutaneous Leishmaniasis
in Northern Regions of the Karakalpak ASSR"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 61-62

Abstract: Examination of 15,000 subjects in 28 hamlets of the Takhtakupyrsk Rayon and 2500 subjects in the Muynakak Rayon of the Karakalpak ASSR indicated that 240 persons had had cutaneous leishmaniasis (227 in the Takhtakupyrsk Rayon and 13 in the town of Muynak). Both rayons are located in the northern part of the Karakalpak ASSR. There were no indications of occurrence of the disease among the native population. Cases of cutaneous leishmaniasis had occurred since at least 1900 in the area studied. Those who had recovered from the disease comprised 0-2.5% and 0.4-7.5% (1.5% on the average) of the population of settled localities of the desert and of cases, respectively. The incidence of the disease increased during 1966-68, as indicated by the fact that 54% of past infections occurred during these three years vs 75% during 1961-68. Of those who had recovered from the disease, 54.8% were infected at an age < 10 yrs and only 16.5% at an age > 20 yrs.

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UDC 576.851.1

FAYZULINA, S. I., KHANDUYEV, Ts. Ts., IMANOV, E. D., GUSEV, B. N., and
MAKAROVA, Ye. V., Institute of Biochemistry and Physiology, Academy of
Sciences Kirgiz SSR

"Dynamics of Development of Negative Colonies of the Virus of Contagious
Ecthyma (Sheep Pox) in Cell Cultures"

Frunze, Izvestiya Akademii Nauk Kirgizskoy SSR, No 1, Jan/Feb 72, p 51

Abstract: Upon infection with the virus of contagious ecthyma or sheep pox (culture strains A and KK), monolayer cell cultures of the skin and kidney of sheep embryos, and the kidney epithelium of adult sheep grown on Hanks medium were treated with an agar solution, so that an agar coating formed and negative colonies (plaques) were observed in tissue cultures. The plaques had a round shape. After staining with methylene blue, degenerated and enlarged intensively stained cells were observed along the edges of the plaques, while in the central section of the plaques, only stained debris of destroyed cells were detected. In cultures of skin and kidney cells of sheep embryos, macroscopically visible plaques appeared on the 4th to 5th day of incubation. The maximum number of plaques not exceeding 1 mm in diameter had formed up to that time. Subsequently, the number of plaques increased at an insignificant
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FAYZULINA, S. I., et al., Izvestiya Akademii Nauk Kirgizskoy SSR, No 1, Jan-Feb 72, p 51

rate, reaching an upper limit on the 9-10th day of cultivation. In cultures of adult sheep kidney cells, the maximum number of plaques (60-70%) had formed on the 5-7th day. Their diameter was ≤ 1 mm at that time. The number of plaques reached an upper limit on the 10-12th day. Their maximum diameter was 4-5 mm on the 10th day of cultivation.

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Nuclear Physics

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USSR

UDC: 539.172.12

AZIMOV, S. A., ARIFKHANOV, U. R., GULYAMOV, M., ISLAMOV, B. I.,
ISKHAKOV, T., ~~FAYZULLAYEV, U. I.~~, ERGASHOV, E., Institute of
Nuclear Physics, Academy of Sciences of the Uzbek SSR

"The Reaction ${}^7\text{Li}(\text{pn}){}^7\text{Be}$ at $E_p = 17.5$ MeV"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya,
Vol 36, No 1, Jan 72, pp 173-174

Abstract: The neutron spectrum of the reaction ${}^7\text{Li}(\text{pn}){}^7\text{Be}$ is studied on a proton beam in the U-150 cyclotron at the Institute of Nuclear Physics at the Academy of Sciences of the Uzbek SSR, using a multichannel, fast-neutron, time-of-flight spectrometer. The measurements were made at a proton energy of 17.5 MeV. The experimental data enabled the authors to distinguish neutron groups n_0 and n_1 corresponding to the ground and excited states of ${}^7\text{Be}$ ($E^* = 0.43$ MeV). Differential cross sections of the reaction are presented, with formation of neutron groups corresponding to the ground and excited states ($E^* = 0.43$ MeV and $E^* = 4.55$ MeV). All curves have a

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. AZIMOV, S. A. et al., IAN SSSR: Ser. Fiz., No 1, 1972, pp 173-174

diffraction structure with a first maximum at $\theta = 0^\circ$ for n_0 and n_1 and a first maximum at $\theta = 20^\circ$ for group n_2 . The curves for n_1 and n_2 are antisymbatic. Three figures, bibliography of six titles.

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USSR

UDC 621.375.82

DEMIN, A. I., KUDRYAVTSEV, Ye. M., SOBOLEV, N. N., FAYZULAYEV, V. N.

"Gasdynamic Laser With a High Water Vapor Content"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 3, Moscow, "Sov. radio", 1972, pp 72-73 (from RZh-Fizika, No 1, Jan 73, Abstract No 1D928)

Translation: A gasdynamic laser using a $\text{CO}_2\text{-H}_2\text{O-N}_2$ mixture heated by a reflected shock wave is investigated. The mixture flowed through a slit. The parameters of the gas mixture heated by the shock wave were: $T = 1300\text{-}2250^\circ\text{K}$, $p = 5\text{-}88$ atm. The laser amplification for a high water content in the working mixture was investigated (the magnitude of $[\text{H}_2\text{O}]$ was comparable with $[\text{CO}_2]$). An electric discharge CO_2 laser was used as probing radiation. Amplification was observed up to $[\text{H}_2\text{O}]/[\text{CO}_2] = 1$ for $[\text{N}_2]/[\text{CO}_2] = 4$, $T = 2250^\circ\text{K}$, $p = 22$ atm. Maximum amplification in this case was observed at a distance of 22 mm from the slit and amounted to $0.4 \cdot 10^{-2} \text{ cm}^{-1}$. Authors' abstract.

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1/2 019 UNCLASSIFIED PROCESSING DATE--02 OCT 70
TITLE--SYNTHESIS OF POLYSULFONES OF ALLYL ARYL ESTERS OF ALKYLPHOSPHONIC
ACIDS -U-
AUTHOR-(03)-FAYZULLIN, I.N., MAKSUDDOVA, T.M., FAYZULLIN, D.A.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 430-3
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, SULFONE, CHEMICAL SYNTHESIS,
HYDROPEROXIDE, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1989/0246 STEP NO--UR/0459/70/012/002/0430/0433
CIRC ACCESSION NO--AP0106904
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106904

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CH SUB2:CHCH SUB2 OP(O)R(OAR) (WHERE R EQUALS ME, CH SUB2 CL, OR (CH SUB2) SUB2 CL AND AR EQUAL PH OR RHO,CLC SUB6 H SUB4) (I) WERE TREATED WITH SO SUB2 IN TOLUENE SOLN. CONTG. CUMENE HYDROPEROXIDE (II) AT MINUS 60DEGREES TO 20DEGREES TO GIVE THE CORRESPONDING POLYSULFONES (MINUS CH SUB2 CHCH SUB2 OP (O)R(OAR) SO SUB2 PRIME NEGATIVE) SUBN (III). INCREASING REACTION TEMP. REDUCED THE SPECIFIC VISCOSITY OF III (R EQUALS CH SUB2 CL AND AR EQUALS PH OR RHO,CLC SUB6 H SUB4). LIMITING (CEILING) TEMPS. ABOVE WHICH NO III COMPS. WERE FORMED WERE MINUS 5 TO PLUS 20DEGREES WITH LITTLE EFFECT FROM CL IN THE AR GROUP BUT HIGHER LIMITING TEMPS. WERE GIVEN BY BIGGER R GROUPS. III (R EQUALS ME, AR EQUALS PH) (IV) WAS PREPD. BY GRADUALLY ADDING A MIXT. OF 6.3 G I (WHERE R EQUALS ME, AR EQUALS PH), 8 SUBO.04 129DEGREES, AND 0.6 G II IN 30 G TOLUENE TO 90 TOLUENE SATD. WITH SO SUB2 AT MINUS 60DEGREES TO GIVE 6.84 G IV, M. 65-70DEGREES. III COMPS. PREPD. SIMILARLY IN 49-81PERCENT YIELD ARE (R, AR, M.P., AND B.P.-MM OF CORRESPONDING I COMPD. GIVEN): CH SUB2 CL, PH, 68-70DEGREES, 143-50DEGREES-0.07; CH SUB2 CH SUB2 CL, PH, 65-67DEGREES, 150DEGREES-0.06; ME, RHO,CLC SUB6 H SUB4, 80-2DEGREES, 137-8DEGREES-0.05; CLCH SUB2, RHO,CLC SUB6 H SUB4, 67-8DEGREES, 138-9DEGREES-0.05; AND CLCH SUB2 CH SUB2, RHO,CLC SUB6 H SUB4, 85-7DEGREES, 158DEGREES-0.06. III PREPD. AT SMALLER THAN OR EQUAL TO 20DEGREES WERE POWDERS; THOSE PREPD. AT LARGER THAN MINUS 20DEGREES WERE RESINOUS DARK MASSES.

UNCLASSIFIED

USSR

UDC 620.193.01:669.295

PAYZULLIN, F. F., FAYZULLINA, R. F.

"Influence of Anions on Anode Polarization of Titanium in Solutions of Certain Salts"

Moscow, Zashchita Metallov, No 5, Sep-Oct, 1972, pp 565-567.

Abstract: The authors study the influence of the anions of certain salts on the rate of anode dissolution of VT-1 titanium. The titanium in all the solutions studied was in the passive state, but its corrosion potential was displaced with the passage of time in the positive direction. As the potential shifts further positive in the 1.2-3.0 v interval, the current density increases at a rate depending on the anion, a result of the varying adsorbabilities of the ions. Under galvanostatic conditions at these potentials, the potential rise rate decreases with a fixed current density. This decrease is explained by disruption of the passive state of the metal related with its transition to the solution.

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USSR

UDC: 66.074.7:546.432:541.46

KUZNETSOV, Yu. V., YELIZAROVA, A. N., LISITSYN, A. P., ~~FAYZULLIN, E. Z.~~

"Concerning the Part Played by Ion Exchange in Precipitation of Radium From Sea Water"

Leningrad, Radiokhimiya, Vol 14, No 3, 1972, pp 441-446

Abstract: An investigation was undertaken to determine the extent to which ion exchange is responsible for the accumulation of ^{226}Ra in sediment. Simultaneous direct determinations were made of the absolute concentrations of ^{226}Ra in samples of bottom sediments taken from the Southern and Central sections of the Indian Ocean and from the equatorial section of the Pacific Ocean. The cation-exchange capacity of the same specimens was determined by two independent methods. Analysis of the results shows a direct relationship between cation-exchange capacity of ocean sediments and the ^{226}Ra concentration in these sediments.

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UDC 541.64:547.379

USSR

FAYZULLIN, I. N., MAKSUDOVA, T. M., SHAGIAKHMETOV, E. M., and NABIYEVA, D. I.

"Polysulfones of Phosphoric Acid Allyl Esters"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15, No 11, Nov 73, pp 2424-2428

Abstract: Reacting sulfur dioxide with allyl alkyl methylphosphonates and allyl aryl β -chloroethylphosphonates yields phosphorus containing polysulfones. Specific reaction temperatures were determined. The effect of the structure of phosphonate esters on the reaction temperature of the formation of polysulfones has been investigated, showing that branching in the chains of the starting monomers leads to lower specific temperature. The only exception noted was that of allyl aryl esters of chloroalkylphosphonic acid. Changing the position of a substituent in the aromatic ring showed no substantive effect on the value of specific temperature.

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UDC 678.85.03

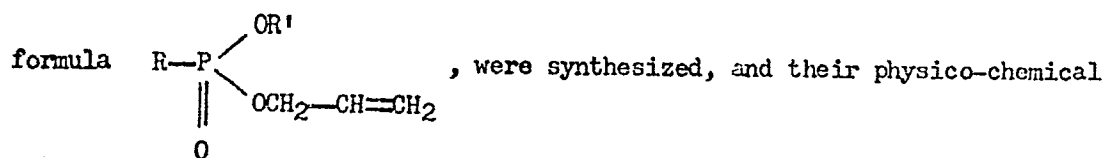
FAIZULLIN, I. N., MAKUDOVA, T. M., ISUPOVA, A. I., FAYZZULLINA, D. A.,
ROMANOVA, T. I., and KUZNETSOV, YE. V.

"Allyl-Aryl Esters of Phosphorus Acids"

Moscow, Plasticheskiye Massy, No 2, Feb 72, pp 60-63

Abstract: A number of organophosphorus polymers are commonly obtained by polymerization of the allyl esters of the phosphorus acids. Since these polymers possess valuable properties, the synthesis of new phosphorus-containing monomers is a matter of practical interest.

Seven allyl-aryl esters of the phosphorus acids, having the general



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FAIZULLIN, I. N., et al., *Plasticheskiye Massy*, No 2, Feb 72, pp 60-63

characteristics (boiling point, phosphorus content, etc.) were determined. The esters were obtained from a two-stage reaction: 1) dichloroanhydride of phenylphosphoric acid with the corresponding alcohol, and 2) the corresponding acid chlorides of the esters with allyl alcohol in the presence of triethylamine in an ether medium.

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Polymers and Polymerization

UDC 678.85.03

USSR

FAYZULLIN, I. N., and SHVETSOVA, L. YE.

"Diallyl Esters of Alkyl(aryl)thiophosphoric Acid"

Moscow, Plasticheskiye Massy, No 11, 1971, pp 29-30

Abstract: The authors synthesized diallyl esters of alkyl-, phenylthiophosphoric acid. The synthesis occurred in two stages. In the first stage alkyl(aryl)thiophosphoric acid dichlorides were obtained by the reaction of phosphorus thiochloride with aliphatic alcohols, in the second stage allyl esters of this acid were synthesized by the interaction of the acid dichlorides with the alcoholate of allyl alcohol. The structure of the resultant esters was confirmed by the results of elementary analysis and IR spectroscopy, as well as Raman spectra. The esters are promising monomers for making some polymers incombustible.

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USSR

FAYZULLIN, I. M., FAYZULLINA, D. A., KUZNETSOV, Ye. V., GEFTER, Ye. L.,
ISUPOVA, A. I., MAKSDOVA, T. M., Kazan' Chemical Scientific Research Institute

"Some Asymmetric Alkyl-Aryl Esters of Alkylphosphonic Acids (abstract of the article)"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, p 2530

Abstract: The authors describe synthesis of chloride and allylaryl esters of methyl-, chloromethyl- and β -chloroethylphosphonic acids. The synthesis was done in two stages. In the first stage, methyl-, chloromethyl- and β -chloroethylphosphonyl dichlorides are interacted with phenols to produce the corresponding acid chloride esters. The second stage is interaction of the acid chloride esters with allyl alcohol in the presence of pyridine. The synthesized substances are colorless liquids which dissolve in organic solvents.

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USSR

UDC: 678.03:547.558.1

FAYZULLIN, I. N., MAKSUDOVA, T. M., NABIYEVA, D. I., and KUZNETSOV, YE. V.

"Synthesis of Diallyl Ethers of Arylphosphoric Acids"

Moscow, Plasticheskiye Massy, No 10, 1970, pp 16-17

Abstract: The synthesis was carried out in two stages. First phosphorus oxychloride was reacted with substituted phenols to yield phenylphosphoric acyl dichlorides. Next these dichlorides were condensed with allyl alcohol. The acyldichlorides were obtained at refluxing temperature, with continuous stirring. The temperature was elevated to 150°C after 4 hrs and kept there for one hour. A double distillation gave final products in 54-63% yield. Next step was carried out by mixing the dichlorides with allyl alcohol and pyridine at 0°C. The reaction was carried out at the refluxing temperature. A triple redistillation gave the products in 18-54% yield -- colorless or yellowish liquids rapidly darkening on storage in light; they were soluble in many organic solvents.

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1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SYNTHESIS OF POLYSULFONES OF ALLYL ARYL ESTERS OF ALKYLPHOSPHONIC
ACIDS -U-
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PROCESSING DATE--02JCT70

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UDC 620.193.01:669.295

FAYZULLIN, F. F., ~~FAYZULLINA, R. F.~~

"Influence of Anions on Anode Polarization of Titanium in Solutions of Certain Salts"

Moscow, Zashchita Metallov, No 5, Sep-Oct, 1972, pp 565-567.

Abstract: The authors study the influence of the anions of certain salts on the rate of anode dissolution of VT-1 titanium. The titanium in all the solutions studied was in the passive state, but its corrosion potential was displaced with the passage of time in the positive direction. As the potential shifts further positive in the 1.2-3.0 v interval, the current density increases at a rate depending on the anion, a result of the varying adsorbabilities of the ions. Under galvanostatic conditions at these potentials, the potential rise rate decreases with a fixed current density. This decrease is explained by disruption of the passive state of the metal related with its transition to the solution.

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UDC 678.85.03

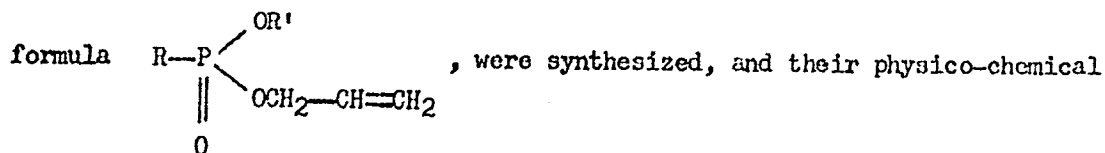
FAIZULLIN, I. N., MAKSUDOVA, T. M., ISUPOVA, A. I., ~~FAYZZULLINA, D. A.,~~
ROMANOVA, T. I., and KUZNETSOV, YE. V.

"Allyl-Aryl Esters of Phosphorus Acids"

Moscow, Plasticheskiye Massy, No 2, Feb 72, pp 60-63

Abstract: A number of organophosphorus polymers are commonly obtained by polymerization of the allyl esters of the phosphorus acids. Since these polymers possess valuable properties, the synthesis of new phosphorus-containing monomers is a matter of practical interest.

Seven allyl-aryl esters of the phosphorus acids, having the general



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FAIZULLIN, I. N., et al., *Plasticheskiye Massy*, No 2, Feb 72, pp 60-63

characteristics (boiling point, phosphorus content, etc.) were determined. The esters were obtained from a two-stage reaction: 1) dichloroanhydride of phenylphosphoric acid with the corresponding alcohol, and 2) the corresponding acid chlorides of the esters with allyl alcohol in the presence of triethylamine in an ether medium.

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USSR

FAYZULLIN, I. N., FAYZULLINA, D. A., KUZNETSOV, Ye. V., GEFTER, Ye. L.,
ISUPOVA, A. I., MAKSUDOVA, T. M., Kazan' Chemical Scientific Research Insti-
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"Some Asymmetric Alkyl-Aryl Esters of Alkylphosphonic Acids (abstract of the
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Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, p 2530

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methyl-, chloromethyl- and β -chloroethylphosphonic acids. The synthesis was
done in two stages. In the first stage, methyl-, chloromethyl- and β -chloro-
ethylphosphonyl dichlorides are interacted with phenols to produce the corres-
ponding acid chloride esters. The second stage is interaction of the acid
chloride esters with allyl alcohol in the presence of pyridine. The synthes-
ized substances are colorless liquids which dissolve in organic solvents.

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USSR

UDC 535.36:621.375.826

POPOVICHEN, V.I., RAGUL'SKIY, V.V., FAYZULLOV, F.S.

"On A Q Switching Technic Using Stimulated Mandelstam--Brillouin Scattering"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), pp 126-129

Abstract: A previous work of which Ragul'skiy and Fayzullov were cosauthors (Pis'ma v ZhETF, 1968, Vol 9, p 11) discussed generation of light pulses with a power of ~ 100 M by means of Q switching caused by stimulated Mandelstam--Brillouin scattering in a laser resonator. The present paper is devoted to a theoretical and experimental clarification of the conditions necessary for realization of such a generation regime. It is shown that the radiation intensity of free generation and its energy density must exceed specific threshold values. The frequency shift of the generated radiation relative to the amplification line center was measured. The authors thank Ye. A. Yukov for helpful discussions. 3 fig. 8 ref. Received by editors, 22 May 1972.

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USSR

UDC: 621.373:530.145.6

POPOVICHEV, V. V., FAYZULLOV, F. S.

"Production of Pulses With a Power of 1 MW in the Case of Free Emission From a Ruby Laser"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 135-136 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D210)

Translation: In emission in a cavity with weak feedback, emission pulses are obtained with an energy of 0.3 J, a duration of 0.2-0.8 μsec , and a spectrum width of $1.3 \cdot 10^{-3} \text{ cm}^{-1}$. Three illustrations, bibliography of four titles. Resumé.

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USSR

UDC 621.375.82

POPOVICHEV, V. I., RAGUL'SKIY, V. V., FAYZULLOV, F. S.

"Producing 1-Mw Pulses With Free Generation of a Ruby Laser"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 135-136 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1040)

Translation: Radiation pulses with an energy of 0.3 joule, a length of 0.2-0.8 μ sec, and a spectral width of $1.3 \cdot 10^{-3} \text{ cm}^{-1}$ were obtained through generation in a resonator with weak feedback. Authors abstract.

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USSR

UDC: 621.373:530.145.6

GRAZYUK, A. Z., POPOVICHEV, V. I., RAGUL'SKIY, V. V., FAYZULLOV, F. S.

"Increasing Emission Brightness by Means of a Brillouin Laser"

V sb. Kvant. elektronika (Quantum Electronics---collection of works), No 1, Moscow, 1971, pp 70-78 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D184)

Translation: It is shown that pumping intensity, energy density and pulse length must exceed certain threshold values to increase brightness by means of lasers on forced scattering. Two Brillouin lasers are experimentally studied: a carbon disulfide laser with brightness amplification, and an ether laser without brightness amplification. A special ruby laser with parameters which satisfy conditions of brightness amplification was used for pumping the carbon disulfide laser. The following characteristics are obtained for a carbon disulfide Brillouin laser: energy efficiency 2 percent; divergence of converted emission $3 \cdot 10^{-4}$ radian (close to diffraction); brightness amplification by a factor of 9. Efficiency in the Brillouin ether laser is 20 percent. Five illustrations, two tables, bibliography of eighteen titles. Resumé.

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USSR

UDC 547.944/945

BESSONOVA, I. A., FAYZUTDINOVA, Z. Sh., and YUNUSOV, S. Yu., "Order of the Red Banner of Labor" ~~Institute of the Chemistry of Plant Materials~~

"Investigation of Alkaloids of Kirgiz Opium"

Tashkent, Khimiya Prirodnkh Soyedineniy, No 6, 1970, pp 711-713

Abstract: The authors studied raw opium and the mother liquor after separation of morphine and narcotine. The raw opium was extracted by water and then by acid. The following alkaloids were chromatographically isolated from the alkaloid sum (21.8%): morphine, codeine, thebaine, papaverine, narcotine, cryptopine, protopine, and also a base with a melting point of 267-268°C, and another with a melting point of 263°C. The latter two resemble alkaloids of the morphine type with respect to UV and mass-spectrometric data. Another non-phenol base with a melting point of 138-139°C was isolated by chromatography on silica gel from alcohol-ammonia mother liquors remaining after extraction of morphine and narcotine. This base was identified as levo-canadine. This is the first time that this alkaloid has been isolated from opium.

1/1

- 3 -

USSR

UDC: 547.94:543.51

RASHKES, YA.V., FAYZUTDINOVA, Z. SH., YUNUSOV, S.YU., Order of Labor Red Banner
Institute of the Chemistry of Natural Compounds, Academy of Sciences Uzbek SSR

"Mass Spectrometry of Haplofoline and Folifine"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 1, 1970, pp 107-110

Abstract: Data are given from an investigation of the mass spectra of alkaloids isolated from *Haplophyllum tuberculatum*: haplofoline, N-methylaplofoline, folifine and acetylfolifine. The principal paths of decay of these four compounds may be studied on the basis of localization of a positive charge on the nitrogen atom. Two decay schemes are described on the basis of the mass-spectroscopic data.

1/1

- 10 -

USSR

UDC 621.316.001.24

FAZYLOV, KH. F., YULDASHEV, KH.

"Formula for the Derivative Losses in Electric Power System Networks"

V. sb. Razvitiye i optimiz. rezhimov energosistem (Development and Optimization of the Operating Conditions of Power Systems -- collection of works), vyp. 2, Tashkent, Fan Press, 1970, pp 66-89 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye220)

Translation: A system of equations is derived for determining the derivatives of the total losses in power systems with respect to the power of each regulated power plant. The determination of the derivatives of this system is connected with calculation difficulties and can be used as the standard calculation for estimating approximate methods. Five simplified formulas are proposed for estimating the derivative losses. The machine time (the Ural-2 computer) required to determine the derivative losses in the power system with 35 units and with 10 participating in the economical load distribution of the plants by these formulas is about 30 seconds. By the numerical differentiation method it is on the order of 3 hours. There is 1 illustration, 3 tables and a 2-entry bibliography.

1/1

USSR

UDC 621.311.1.001.24

FAZYLOV, IH. F., Doctor of Technical Sciences, BRISKIN, I. L., NASYROV, T. KH.,
Engineers, Tashkent

"Algorithms for Calculating the Steady State Conditions of Large Electric
Power Systems"

Moscow, Elektrichestvo, No 9, 1972, pp 11-14

Abstract: A study was made of algorithms for calculating large electric power systems based on division of the large system into subsystems. When assigning the boundary conditions in the form of currents and power fluxes, inadequacy of the properties of the solutions of the equations of the steady state conditions of the subsystems and the system as a whole is detected. It is proposed that the boundary conditions be assigned in the form of an equivalent balancing junction, and the corresponding algorithm is proposed on the basis of the equations with the matrix of the junction resistances. The matrix derivation of the nonlinear junction voltage equations for use in the equivalent balancing junction method is also given.

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USSR

UDC 669.187.2

TYURIN, YE. I., and ZHENCHUZHNYI, M. V., Candidate of Technical Sciences,
FEDAN, A. T., Engineer, and PETROV, B. A., Candidates of Technical Sciences,
Krasnyy Oktyabr' Plant

"Improvement of Stainless Steel Production Technology"

Moscow, Stal', No 10, Oct 73, pp 895-898

Abstract: Research was conducted by the Krasnyy Oktyabr' Plant jointly with the Volgograd Scientific Research Institute of Machine Building Technology and the Moscow Institute of Steel and Alloys on improving the engineering properties of a number of stainless steels by adding rare-earth metals and microalloying with boron (0.0015-0.0050%). Studies were also performed on the principles of oxidation of impurities in steels baths of varying composition during deep decarburizing using oxygen, and on the features of reducing chromium and iron from the oxides of the high-chromium slag. As a result of this study, an entire series of stainless steels of the austenitic and austenitic-ferritic class was put into mass production, the technology of smelting many stainless steels by a one-slag process was developed and mastered, and the technology of smelting stainless steels with a carbon content less than 0.03%
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USSR

TYURIN, YE. I., et al., Stal', No 10, Oct 73, pp 895-898

is being successfully introduced by the method of remelting tailings with oxygen oxidation. The following persons from the Volgograd and Moscow Institutes have participated in the above mentioned research, which started in 1960: B. S. PETROV, A. F. VISHKAREV, K. I., ANTIPOV, M. N., KUL'KOVA, M. P., SIDEL'KOVSKIY (DECEASED), B. V. IVANOV, YU. V. KRYAKOVSKIY, and N. A. PIROGOV, S. A. BLIZNYUKOV, Candidate of Technical Sciences (Moscow Institute of Steel and Alloys), determined that boron is not a surface-active element on steel Kh23M18 and does not affect the grain boundary state. A. P. OKENKO, Candidate of Technical Sciences, and T. B. SABININA, Engineer, conducted electron microscopy studies of grain-boundary strengthening. Four figures, eight bibliographic references.

2/2

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USSR

UDC 539.389.2:669.15

DONUKIS, T. L., LOBODYUK, V. A., SAVVAKIN, G. I., TITOV, P. V.,
~~FEDAS, N. P.~~, and KHANDROS, L. G., Institute of Metal Physics,
Academy of Sciences Ukr SSR

"The Effect of Shock Loading on the Structure and Properties of
Fe - Ni Alloys"

Kiev, Metallofizika, No 32, 1970, pp 88-94

Translation: The structure and properties of Fe - 30% Ni and
Fe - 32% Ni alloys after the passage of shock waves of 100 and
300 kbar were studied. The loading was made by a shock of a
steel plate. The time of the effect of high pressure was 1.4
microseconds. A shock wave of 300 kbar induces an almost full
 $\alpha \rightarrow \gamma$ transformation. A needle structure unusual for aus-
tenite, twins, and a cellular dislocation structure were observed
in the γ -phase formed.

After the $\alpha \rightarrow \gamma$ transformation induced by the passage of
a shock wave, hardness reached 270 Hv, and the γ -phase hardened
by shock loading had a hardness of 220 Hv. The recovery of the
1/2

USSR

DONUKIS, T. L., et al., Metallofizika, No 32, 1970, pp 88-94

δ -phase formed as a result of the $\alpha \rightarrow \delta$ transformation under the effect of shock loading began at 200°C below the recovery temperature of 70% deformed austenite.

2/2

- 88 -

1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ROLE OF A LOCAL INCREASE IN TEMPERATURE IN AN OXIDE FILM DURING THE
ANODIZING OF ALUMINUM -U-
AUTHOR--(02)-BOLGOV, V.I., FEDASH, P.M.
COUNTRY OF INFO--USSR F
SOURCE--ZASHCH. METAL. 1970, 6(2) 211-13
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALUMINUM ALLOY, OXIDE FILM, ANODIZED ALUMINUM ALLOY, SURFACE
FILM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY PEEL/FNAME--1992/0753 STEP NO--UR/0365/70/006/002/0211/0213
CIRC ACCESSION NO--AP0111946
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111946

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMT. OF HEAT EVOLVED IN THE OXIDE FILM WAS DETD. INDIRECTLY. THE POROUS FILM IMPEDED THE TRANSFER OF HEAT FROM THE BARRIER FILM TO THE ELECTROLYTE. THIS INDICATED THAT MOST OF THE HEAT IS GENERATED NOT IN THE POROUS PART OF FILM BUT IN ITS BARRIER LAYER. THE FREQUENTLY OBSERVED INSTABILITY OF THE ANODIC POTENTIAL OF AL IN A MIXT. OF H SUB2 SO SUB4 AND H SUB3 PO SUB4 WAS CHECKED IN A MIXT. OF THESE 2 ACIDS. WHEN THE ANODE WAS INTERNALLY COOLED TO CARRY OFF THE HEAT FROM THE BARRIER LAYER, THE INSTABILITY OF THE POTENTIAL DISAPPEARED AND THE POTENTIAL ROSE SMOOTHLY UP TO THE POINT OF SPARKING. THIS CONFIRMED THE CONTENTION THAT THE INSTABILITY OF THE ANODIC POTENTIAL IS OCCASIONED BY LOCAL OVERHEATING. A RISE IN THE TEMP. OF THE BARRIER LAYER DISTURBS THE RELATION BETWEEN THE RATE OF GROWTH AND THE RATE OF DISSOLN. OF THE OXIDE FILM. THE RATE OF GROWTH OF THE FILM IS DETD. BY THE C.D. AND IS INDEPENDENT OF THE TEMP., WHEREAS THE RATE OF CHEM. DISSOLN. IS INDEED AFFECTED BY THE TEMP.

UNCLASSIFIED

USSR

UDC: 620.198

SHAPOVALOV, V. P., GORBUNOV, N. S., BRYNZA, A. P., FEDASH, V. P.,
LEGASHOVA, T. P.

"Corrosion Resistance and Electrochemical Behavior of Titanium Coatings"

Moscow, Zashchita Metallov, Vol 9, No 3, Jul-Aug 73, pp 465-467.

Abstract: The corrosion and electrochemical behavior of diffusion titanium coatings was studied in acid, alkaline and organic media. The corrosion tests and studies of electrochemical behavior of titanium coatings produced from the vapor phase in a vacuum showed that diffusion titanium coatings can protect iron-carbon alloys from the effects of certain corrosive media. The resistance of type 3 steel, titanium coated, with exposures of up to 450 hours, is significantly higher than that of carbon steel and stainless steels, and in many cases is equal to the resistance of titanium alloys.

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USSR

UDC: 66 - 620.193

BRYNZA, A.P., GERASYUTINA, L.I., and FEDASH, V.P., Dnepropetrovsk State University
imeni 300th Anniversary of the Union of Russia and the Ukrain, Dnepropetrovsk,
Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Protective Action of Katapine A in Titanium Corrosion in Hydrochloric Acid"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 4, Apr 70,
pp 397-400

Abstract: The authors studied the effect of Katapine A (alkylbenzylpyridinium chloride), an inhibitor of the corrosion of titanium, in 5 and 10 N HCl solution at 20-80°. By chemisorption on the surface of titanium, Katapine A slows down the rate of electrochemical reaction of the corrosive process. Appearance of the chemisorption layer aids in the inhibition of the corrosion of the metal surface by adsorptive-chemical reaction with water oxygen.

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USSR

UDC: 621.315.621.5

FEDCHENKO, Ye. D., IBRAIMOV, N. S., KUZ'MIN, Ye. N., ASTAKHOVA, G. I.

"X-Ray Structural Study of the Process of Aging of Piezoceramic Materials of the TsTS System"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 92-95 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V479)

Translation: An x-ray study was made of ninety-degree reorientation of domains in the process of natural aging of polarized piezoceramic specimens of the TsTS system. It is found that one of the principal physical mechanisms of aging is ninety-degree motion of the domain wall. It is shown how the number of ninety-degree reorientations of domains depends on the temperature of the specimen during polarization. Resumé.

1/1

FEDCHUK, V.K.

40
 18-160/5-112
 18-160/5-112
 40
 Fedchuk, G. N. and V. K. Fedchuk.
Device for investigating destruction of
structural elements in supersonic high
temperature gas flow containing a controlled
amount of abrasive particles. Problemy
 mekhaniki, no. 5, 1972, 112-113.

On the basis of the gas-dynamic test stand of Pisarenko, et al (IN: *Termoprochnost' materialov i konstruktivnykh elementov*, Kiev, 1965), a device was developed for studying the destruction processes of aircraft thermal-protection materials and elements, and flow-through parts of high-temperature machines, simulating operational conditions. By means of this device, it is possible to investigate: (1) destruction and crack formation factors in nozzle-inert materials and heat insulation from an unstable thermal stress state, (2) heat-insulation structures, and (3) the effect of gas flow corrosion action on the process of nozzle-insert breakdown. The device is capable of producing a stream with a temperature $T = 1950^\circ \text{K}$, a velocity of 1160 m/sec, and a flow rate of up to 1 kg/sec.

The apparatus consists of a sectional supersonic nozzle, a high-temperature combustion chamber, two cooling units, a controlled injector of abrasive particles into the gas stream, and measuring and recording instrumentation. The nozzle consists of three sections: subsonic, critical, and supersonic, fitted together into a single unit. Heat-insulation materials can therefore be tested in a supersonic gas stream, and, by replacement of the critical section with a special chamber, nozzle-insert models specimens can also be tested. The specimen insert is placed in a test chamber, in the form of a metal sheath filled with sand for heat insulation. In addition, high-temperature insulation is provided by a MgO layer. The high-temperature oxygen combustion chamber raises the stream temperature to about 2700°K . Compressed air is supplied at 2-3 atm to a

USSR

UDC 518:512.83

FEDCHUN, L. V., and ROMANOVICH, S. S.

"Inversion of a 200-Rank Matrix on the M-220 Computer"

Kiev, Kibernet. tekhnika -- Sbornik (Cybernetic Equipment -- Collection of Works), No 9, 1971, pp 118-120 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B906, by I. Shelikhova)

Translation: The authors describe an algorithm constructed on the basis of the optimal exclusion method that permits inverting nondegenerate matrices up to rank 200 inclusively on the M-220 computer, using magnetic drum and magnetic tape (the program was stored in the MOZU-1 [magnetic internal storage-1]). Matrices, both direct and inverse, are divided into cells: that is, square matrices of order l that are multiples of order n of the system's matrix. A necessary condition for the realizability of the process is the nonsingularity of the diagonal cells of the direct matrix. The computational process consists of N steps, where $N = n/l$ is the number of cellular rows of the matrix. The time required for the inversion of a 200-rank matrix, including computation of the coefficients of the direct matrix, is approximately 50 minutes.

1/1

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USSR

UDC: 518.5:681.3.06

ROMANOVICH, S. S., FEDCHUN, L. V.

"Calculation of the Density of a Simple Layer of Charges on a Conducting Surface of Axisymmetric Shape"

V sb. Mat. obespecheniye avtomatizir. sistem proyektir. elektro- i radio-
tekh. ustroystv (Software for Automating Systems for Design of Electronic
and Radio Equipment), vyp. 2, Kiev, 1970, pp 202-223 (from RZh-Kibernetika,
No 11, Nov 71, Abstract No 11V851)

Translation: The paper describes an algorithm and program for calculating
the density of a simple layer of charges on a conducting surface of axi-
symmetric shape. The program is presented in M-20 computer codes. V.
Mikheyev.

1/1

USSR

UDC 576.895.771.095.38:576.895.132.5

FEDDER, M. L., SUPRYAGA, V. G., YAKUBOVICH, V. Ya., and MANUKHOV, A. G.,
Division of Epidemiology and Prophylaxis of Malaria in the USSR and of the
Nosogeography of Parasitic Tropical Diseases in Foreign Countries, Institute
of Medical Parasitology and of Tropical Medicine imeni Ye. I. Martsinovskiy,
Ministry of Health USSR, Moscow

"Susceptibility to Wuchereria bancrofti Cobbold of Culex pipiens molestus
Forsk. Mosquitoes Occurring in Moscow"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 5,
Sep-Oct 72, pp 599-601

Abstract: Culex pipiens molestus Forsk. mosquitoes from the City of Moscow
were successfully infected with Wuchereria bancrofti Cobbold microfilaria by
feeding them through a biological membrane (a freshly removed skin of a white
mouse) with venous blood of wuchereriosis patients (one a native of East Africa
and another of Vietnam) mixed with a physiological saline solution and stored
at a temperature $\leq 5^{\circ}$. The W. bancrofti larvae reached the invasion stage 16-
17 days after infection of the female mosquitoes, which were kept at 23-26 $^{\circ}$
and a relative humidity of 60-75%.

1/1

- 8 -

UDC 576.895.771:616.988.25-036.2(571.63)

USSR

FEDDER, M. L., REZNIK, YE. P., DANILEVSKIY, M. L., MANTUKHOV, A. G., and TROTSKAYA, D. F., Institute of Medicinal Parasitology and Tropical Medicine imeni Ye. I. Martynovskiy, USSR Ministry of Public Health, Moscow; Institute of Epidemiology and Microbiology, Vladivostok

"Data of the Epidemiological Evaluation of Natural Populations of Aedes togoi Theobald in the Soviet Primorye"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 301-307

Abstract: A. togoi mosquitos are carriers of Japanese encephalitis in a number of Southeast-Asian countries and also in the Primorskiy region of the Far Eastern USSR. Data on the duration of the gonotropic cycle of A. togoi in the Khasan region were collected in July-August 1969 at a number of points of the region; the cycle was found to last seven to eight days. Females, which grew for two or more gonotrophic cycles, were most dangerous, respect to Japanese encephalitis and wuchereriosis, that is 14-16 day-old females for encephalitis and 21-24 day-old females for wuchereriosis. The age composition of natural populations was determined from autopsy of 2,123 females. A total of 11.5% of attacking encephalitis-carrying mosquitos were females, while 1/2

USSR

FEDDER, M. L., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 301-307

only 2.9% of the wuchereriosis-carrying attacking mosquitos were female. At peak activity, there were 9.8 females per hour attacking one person among the encephalitis-carrying mosquitoes, while only 3.3 females per hour attacked one person among the wuchereriosis-carrying mosquitoes.

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USSR

UDC 629.7.036.3:536.46

GLUSHKOV, V. YE., KALINCHAK, V. V., and FEDDOSEYEVA, N. V.

"Calculation of the Evaporation Rate of Drops at High Temperatures"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 -- Sbornik (11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Articles), 1972, pp 34-35 (from Referativnyy Zhurnal -- Aviyatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.10. Resume)

Translation: When calculating the evaporation rate of drops, it is necessary to know the relationship of their temperature T_s to the conditions of evaporation (the temperature T_{med} and pressure P_{med} , etc.). The temperature of an evaporating drop is found from the solution of a system of heat- and mass-exchange equations. The solution of this system leads to a transcendental equation with respect to T_s . The conducted analysis showed that disregarding the Stefan flow in heat- and mass-exchange equations at high temperatures leads to the physically unjustifiable expression $T_s \rightarrow T_{med}$ when $T_{med} \rightarrow \infty$.

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USSR

GLUSHKOV, V. YE., et al., 11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Articles, 1972, pp 34-35

Taking the Stefan flow into account leads to the physically valid solution $T_s \rightarrow T_{\text{boil}}$ (boiling point) when $T_{\text{med}} \rightarrow \infty$. The obtained relationship permits the evaporation rate of the drop to be calculated directly at various temperatures. Taking into account the relationship of the boiling point of the liquid to its composition and the temperature of the surrounding medium provides the possibility of calculating the evaporation rate of drops of multi-component liquid mixtures at high-temperatures nonisobaric conditions.

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--BLOOD COAGULATION AND ANTICOAGULATION IN NON ICTERIC AND EFFACED
FORMS OF INFECTIOUS HEPATITIS -U-
AUTHOR--FEDENKO, N.N.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 151-154
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEPATITIS, INFECTIOUS DISEASE, BLOOD COAGULATION, HEMOSTASIS,
DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FAME--1986/0673 STEP NO--UR/0475/70/000/003/0151/0154
CIRC ACCESSION NO--AP0102657
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--02JCT70

CIRC ACCESSION NO--AP0102657

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY OF 155 PATIENTS INDICATE THAT IN NON ICTERIC AND EFFACED FORMS OF INFECTIOUS HEPATITIS ONE OBSERVES A DECREASED BLOOD COAGULATION, CAUSED BY A REDUCTION OF THE COAGULATING AND IN PARTICULAR OF THE ANTICOAGULATING (ANTITHROMBIN, HEPARINE AND FIBRINOLYTIC) ACTIVITY OF THE BLOOD. CHANGES OF HEMOSTASIS WERE SEEN DURING THE ENTIRE COURSE OF THE DISEASE, MAXIMUM CHANGES OCCURRING AT THE HEIGHT OF THE DISEASE. RECONVALESCENCE IS NOT ACCOMPANIED BY COMPLETE NORMALIZATION OF THE BLOOD COAGULATION.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SPECTROFLUORIMETRY OF PIGMENTS OF THE INITIAL STRAIN AND
PROTOCHLOROPHYLL MUTANTS RHODOPSEUDOMONAS PALUSTRIS -U-
AUTHOR-(04)-KRASNOVSKIY, A.A., FEDENKO, YE.P., LANG, F., KONDRATYEVA,
YE.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(1), 218-21 (BIOCHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHLOROPHYLL, BIOLOGIC PIGMENT, BIOSYNTHESIS, FLUORESCENCE,
BACTERIA MUTATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1096 STEP NO--UR/0020/70/190/001/0218/0221
CIRC ACCESSION NO--AT0119955
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0119955

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYTIN AND PHYTIN FREE FORMS OF PROTOCHLOROPHYLL PIGMENT WERE FOUND IN THE 5 MUTANTS OF THE TITLE ORGANISM; THESE MUTANTS CARRIED MUCH SMALLER AMTS. OF THE PIGMENTS THAN DID THE PARENT FORM. IN ADDN. ALL MUTANTS ALSO CONTAINED, AS DID THE PARENT FORM, CHLOROPHYLL LIKE PIGMENTS WITH MAXIMA OF FLUORESCENCE IN 658,674 AND 700 M MU REGIONS. THESE ARE POSSIBLY INTERMEDIATES IN BIOSYNTHESIS OF BACTERIOCHLOROPHYLL. FACILITY: INST. BIOKHM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

1/2 007

UNCLASSIFIED

PROCESSING DATE--020CT70

TITLE--ULTRA FINE CELL STRUCTURE OF THE PARENT STRAIN AND OF THE PIGMENTED
MUTANT OF PHODOPSEUDOMONAS PALUSTRIS -U-
AUTHOR--(02)-SOLOVYEVA, ZH.V., FEDENKO, YE.P.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 109-111

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PSEUDOMONAS, BACTERIA MUTATION, CELL MEMBRANE, CYTOPLASM,
PHOTOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1990/1443

STEP NO--UR/0220/70/039/001/0109/0111

CIRC ACCESSION NO--AP0109503

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109503

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PARENT STRAIN AND THE PROTOCHLOROPHILIC MUTANT OF RH. PALUSTRIS HAVE SIMILAR CELL STRUCTURE BUT THE MUTANT, UNCAPABLE FOR PHOTOSYNTHESIS, DOES NOT FORM PERIPHERAL LAMELLAR STRUCTURES. SUCH STRUCTURES (THYLAKIIDS) ARE FOUND IN THE CELLS OF THE PARENT STRAIN GROWN IN LIGHT BUT NOT IN THE CELLS GROWN IN DARKNESS. THIS CONFIRMS THEIR FUNCTION AS THAT OF PHOTOSYNTHETIZING APPARATUS. NO STRUCTURES SIMILAR TO MESOSOMES WERE FOUND IN THE MUTANT OR IN THE PARENT STRAIN GROWN IN DARKNESS UNDER AEROBIC CONDITIONS. THE FUNCTION OF THE RESPIRATORY APPARATUS IN RH. PALUSTRIS SEEMS TO BE CARRIED OUT BY CYTOPLASMIC MEMBRANE.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ULTRA FINE CELL STRUCTURE OF THE PARENT STRAIN AND OF THE PIGMENTED
MUTANT OF PHODOPSEUDOMONAS PALUSTRIS -U-
AUTHOR-(02)-SOLOVYEVA, ZH.V., FEDENKO, YE.P. F
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 109-111
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PSEUDOMONAS, BACTERIA MUTATION, CELL MEMBRANE, CYTOPLASM,
PHOTOSYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/1443 STEP NO--UR/0220/70/039/001/0109/0111
CIRC ACCESSION NO--AP0109503
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109503

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PARENT STRAIN AND THE PROTOCHLOROPHILIC MUTANT OF RH. PALUSTRIS HAVE SIMILAR CELL STRUCTURE BUT THE MUTANT, UNCAPABLE FOR PHOTOSYNTHESIS, DOES NOT FORM PERIPHERAL LAMELLAR STRUCTURES. SUCH STRUCTURES (THYLAKIIDS) ARE FOUND IN THE CELLS OF THE PARENT STRAIN GROWN IN LIGHT BUT NOT IN THE CELLS GROWN IN DARKNESS. THIS CONFIRMS THEIR FUNCTION AS THAT OF PHOTOSYNTHETIZING APPARATUS. NO STRUCTURES SIMILAR TO MESOSOMES WERE FOUND IN THE MUTANT OR IN THE PARENT STRAIN GROWN IN DARKNESS UNDER AEROBIC CONDITIONS. THE FUNCTION OF THE RESPIRATORY APPARATUS IN RH. PALUSTRIS SEEMS TO BE CARRIED OUT BY CYTOPLASMIC MEMBRANE.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--14SEP70
TITLE--THE COAGULATION AND FIBRINOLYTIC PROPERTIES OF THROMBOCYTES OF
RABBITS IN EXPERIMENTAL ATHEROSCLEROSIS -U-
AUTHOR-(03)-RUDCHENKO, S.A., NIKITIN, YU.P., FEDENKOV, V.I.

CCOUNTRY OF INFO--USSR

SOURCE--BYULLETIN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 3, PP 49-52
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD COAGULATION, FIBRINOLYSIS, THROMBOCYTE, RABBIT,
ATHEROSCLEROSIS, DIET, CHOLESTEROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1982/0849

STEP NO--UR/0219/70/0697033/0049/0052

CIRC ACCESSION NO--AP0052283

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--1906970

CIRC ACCESSION NO--AP0052283

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER INVESTIGATION WERE THE PLASMA WASHED THROMBOCYTES, A SUSPENSION OF THEIR STROMA AND THROMBOLYSATES OF RABBITS RECEIVING WITH FOOD CHOLESTEROL IN A DOSE OF 0.4 GM-KG FOR 4 TO 6 MONTHS. THERE WAS FOUND A REDUCTION OF THEIR THROMBOPLASTIC AND RISE OF THE ANTIFIBRINOLYTIC ACTIVITY AT THE EXPENSE OF INCREASED CONTENT OF ANTI-ACTIVATORS. IN ATHEROSCLEROSIS THERE WERE NOTED NO ESSENTIAL ALTERATIONS IN THE ACTIVITY OF THE SECOND AND FOURTH THROMBOCYTIC FACTORS.

UNCLASSIFIED

ATO032096

NUCLEAR SCI. ABST. 2-70

UR 0000

6510 (NP-tr-1861) EXPERIMENTS WITH STRONG SHOCK-
WAVES ON "VODA I." Kapitonov, V. A.; Kornilov, V. A.; Lagu-
nov, V. M.; Nesterikhin, Yu. E.; Papyrin, A. N.; Ponomarenko,
A. G.; Federov, V. G. (Akademiya Nauk SSSR, Novosibirsk, (In-
stitut Yadernoi Fiziki)). Translated for Culham Lab., Abingdon,
Eng., from Preprint No. 238. 11p. (CTO-658). Dep. CFSTI
(U. S. Sales Only).

Experiments are described on the excitation of strong collision-
less shock waves ($M \geq 5$) with subsequent containment of the
plasma by the magnetic field of the shock loop. A magnetic piston
of ~ 20 kOe was produced within $\sim 100 \times 10^{-8}$ sec by a current
generator forming a long line with water insulation for 250 keV
and wave impedance of 1 Ω . (auth)

19700282

USSR

UDC 539.12

RADYUK, A. F., and FEDEROV, F. I., Academician of the Academy of Sciences of the Belorussian SSR, Institute of Physics, Academy of Sciences of the BSSR, Minsk.

"A Fermion with Anomalous Magnetic Moment in the Field of a Plane Electromagnetic Wave"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 5, 1973, pp 1091 - 1093

Abstract: In 1937, D. M. Volkov first obtained an exact solution for a Dirac electron in the field of a plane electromagnetic wave. In Volume 174 of this journal, F. I. Federov suggested a general method for finding exact solutions for particles with various spins in such a field. This work applies this method for particles with a spin of $1/2$, taking Pauli interaction into account. It is shown that Pauli interaction reduces the degeneracy which would otherwise be observed.

1/1

USSR

UDC 535.13

FEDOROV, F. I., and FILIPPOV, V. V.

"Trajectories and Energy Flow Lines of Non-Uniform Electromagnetic Waves in an Isotropic Absorbing Medium"

Leningrad, Optika i Spektroskopiya, Vol 35, No 1, Jul 73, pp 135 - 141

Abstract: Expressions are found for the trajectory and flow lines of the energy of a non-uniform electromagnetic wave of arbitrary polarization in an isotropic absorbing medium. As in the case of a transparent medium, the instantaneous velocity of energy transportation in the direction of phase movement is not equal to the phase velocity but can be either greater or less. The energy movement occurs along one of two possible types of trajectories. Circularly polarized waves are an exception; their phase and energy movements are synchronized and linear. In contrast to a transparent medium, the energy of non-uniform waves in an absorbing medium can move for some period of time in a direction opposite to that of the phase movement.

Since the electromagnetic waves in an absorbing medium are almost always non-uniform, the question is of considerable interest, even making some simplifying assumptions. The present study assumes no dispersion and represents the dielectric permeability of the medium by a complex number, the imaginary portion of which represents losses in the medium of an unspecified nature.

1/1

- 95 -

1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--NET RADIATION AND ITS COMPONENTS FOR INCLINED SURFACES ON THE MOON
-U-
AUTHOR--(02)-KONDRATEV, K.I., FEDEROVA, M.P.
COUNTRY OF INFO--USSR, UNITED STATES
SOURCE--IN: APPLIED SCIENCES RESEARCH AND UTILIZATION OF LUNAR RESOURCES;
INTERNATIONAL ACADEMY OF ASTRONAUTICS, INTERNATIONAL ASTRONAUTICAL
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--LUNAR SURFACE, SOLAR RADIATION ABSORPTION, LONG WAVE
RADIATION, LUNAR RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3009/0216 STEP NO--UK/0000/70/000/000/0017/0035

CIRC ACCESSION NO--AT0139072
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AT0139072
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE NET RADIATION
NOT ONLY OF THE HORIZONTAL BUT ALSO OF THE INCLINED SURFACE OF A
CELESTIAL BODY HAVING NO ATMOSPHERE, A PROBLEM WHICH ARISES FROM THE
RELIEF COMPLEXITY OF THE SURFACE OF THE MOON. THE AVAILABLE DATA ON THE
SURFACE TEMPERATURE OF THE MOON; ITS SURFACE NET RADIATION AND ITS
COMPONENTS; THE THERMAL EMISSION OF THE SURFACE AND ABSORBED SOLAR
RADIATION; AND THE DISTRIBUTION OF NET RADIATION AND ITS COMPONENTS
OVER THE SURFACE OF THE MOON ARE DISCUSSED. ALSO CONSIDERED ARE THE
INCOME OF SOLAR RADIATION ON THE SURFACE OF VERTICAL WALLS OF VARIOUS
ORIENTATIONS, AND THE LOSS OF HEAT FROM THE VERTICAL SURFACES DUE TO
LONG WAVE RADIATIONS AND THE POSSIBILITIES OF CALCULATING THE NET
RADIATION OF A VERTICAL CIRCULAR CYLINDER. FACILITY:
LENINGRADSKII GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--MUTUAL EFFECT OF OLEFINS ON THEIR OXIDIZABILITY OVER IRON ANTIMONY
MOLYBDENUM OXIDE CATALYSTS -U-
AUTHOR-(C3)-FEDEVICH, YE.V., ZHIZNEVSKIY, V.M., TOLOPKO, D.K.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(4), 400-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OLEFIN, CATALYTIC OXIDATION, IRON, ANTIMONY, MOLYBDENUM,
BUTENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605013/B07 STEP NO--UR/0073/70/036/004/0400/0403

CIRC ACCESSION NO--AP0140351

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140351

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATIO OF FE, SB, AND MO ATOMS IN THE OXIDE CATALYST WAS 1:0.06:1. ON THIS CATALYST THE RATE OF OXIDN. DECREASED FROM ETCH:CH SUB2 TO ME SUB2 C:CH SUB2, TO MECH:CH SUB2. IF AS MUCH AS 10 MOLE PERCENT OF BUTYLENE WAS PRESENT OXIDN. OF MECH:CH SUB2 WAS SUPPRESSED. THIS IS INTERPRETED AS INDICATING THAT CATALYSIS OPERATES BY AN ADSORPTION AND NOT BY A RADICAL MECHANISM. THE GREATER RATE FOR ETCH:CH SUB2 OVER THAT OF ME SUB2 C:CH SUB2 IS ATTRIBUTED TO THE GREATER REACTIVITY OF SECONDARY H ATOMS. FACILITY: L'VOV POLITEKH. INST., LV0V, USSR.

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYTIC PROPERTIES OF TIN ANTIMONY TELLURIUM OXIDE CATALYSTS FOR
ISOBUTYLENE OXIDATION -U-
AUTHOR--(02)--FEDEVICH, YE.V., SULIMA, I.M.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTKHIM. (MOSCOW) 1970, (4), 41-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CATALYST ACTIVITY, TIN OXIDE, ANTIMONY COMPOUND, TELLURIUM
COMPOUND, ISOBUTENE, CATALYTIC OXIDATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0979 STEP NO--UR/0318/70/000/004/0041/0044
CIRC ACCESSION NO--AP0134697
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134697

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE CATALYSTS HAD 4:1 SB TE AT. RATION AND ADDED SN; SP. SURFACE 1.25-1.75 M PRIME2 G. ADDN. OF 5 AT. PERCENT SN TO THE ORIGINAL SB TE OXIDE CATALYST INCREASED THE REACTION RATE. NO SN COMPONENTS WERE FORMED WITH SB OR TE WHEN SN WAS ADDED. THE ACTIVITY INCREASE WAS DUE TO PROMOTION BY SNO SUB2. THE MAX. SP. CATALYTIC ACTIVITY WAS NOTED WITH THE CATALYST CONTG. 80 AT. PERCENT SN AND WAS DUE TO FORMATION OF A SOLID SOLN. OF SB SUB2 O SUB4 IN SNO SUB2. FACILITY: L'VOV. POLITEKH. INST., LVOV, USSR.

UNCLASSIFIED

USSR

UDC: 532.57+532.137+536.51+532.14.08+531.787

FEDIN, A. G. and BLUM, E. Ya.

"Laser Interferometer for Investigating Boundary Layers in Liquids"

Riga, Izvestiya Akademii nauk Latvyskoy SSR -- Seriya fizicheskikh i tekhnicheskikh nauk, No 5, 1972, pp 77-84

Abstract: The relatively inexpensive and simply adjusted types of interferometer known as diffraction shadow interferometers (DSI) have recently come into wide use. Using them with lasers has extended laser techniques even further, especially when a point source of monochromatic light is at the focus of the DSI collimator and opaque lines on glass are placed at the focus of the receiving portion. The possibilities in the use of such laser interferometer systems for investigating thermal and diffusion boundary layers in liquids are explained in this paper using the IAB-451 type of DSI as the basis of the system under discussion. A diagram of the system is presented. Observation of the interference pattern and a few simple calculations have shown that deviation angles of the light beams measuring no more than 36° are best for investigating most gas dynamic processes. The advantages of using a laser as the light source in DSIs are discussed, and interference pattern photographs are reproduced.

1/2

USSR

UDC: 532.57+532.137+536.51+532.14.08+531.787

FEDIN, A. G., et al, Izvestiya Akademii nauk Latvviyskoy SSR --
Seriya fizicheskikh i tekhnicheskikh nauk, No 5, 1972, pp 77-84

Comparison of the theoretical and experimental results found in this paper shows that, used with the laser, the IAE451 type of DSI can be successfully used for quantitative research of boundary layers in liquids.

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- 119 -

Steels

USSR

FEDIN, B., Candidate of Technical Sciences, (Reviewer)

Kachestvo Uglerodistoy Stali (The Quality of Carbon Steel),
Second Edition, Revised and supplemented, Moscow, Metallurgiya
Press, 1969, 375 pp

Standarty i Kachestvo, No 8, 1970, pp 75-76

Abstract: The book reviewed demonstrates the factual interrelationship between quality parameters and the norms set forth in the standards. The author based his evaluation of steel quality on the physical-chemical properties of the metal material and the quality of finishing of metal products. The author demonstrates that the physical and chemical properties of modern Soviet steels are at the level of world standards, while the quality of finish of steel parts produced leaves something to be desired. The book includes an extensive discussion of standardization, demonstrating that standardization in ferrous metallurgy is one of the most important factors involved in technical progress and economic activity.

1/1

USSR

UDC 547.558.1

MASTRYUKOVA, T. A., SUYERBAYEV, KH. A., FEDIN, E. I., PETROVSKIY, P. V.,
MATROSOV, YE. I., and KABACHNIK, M. I., Institute of Metal Organic Compounds,
Acad. Sc. USSR

"Diphosphacyclohexadienone"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, p 1195

Abstract: 3,3,5,5-Tetraphenyl-3,5-diphosphacyclohexadienone, m.p. 188.5-192°, was synthesized by the reaction of 3,3,5,5-tetraphenyl-3,5-diphosphoniacyclohexanone with triethylamine. On the basis of IR and NMR ^{31}P data it appeared that the new compound exists as diphosphacyclodienone substituted at the phosphorus atom; there were no indications of the existence of diphosphaphenolic structure.

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1/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--STRUCTURE OF CYCLOPENTADIENYL COMPOUNDS OF NONTRANSITION METALS OF
PERIODS 5 AND 6 REVIEWED FROM NMR SPECTROSCOPIC DATA, SANDWICH NATURE OF
AUTHOR--(03)--FEDIN, E.I., FEDOROV, L.A., MATERIKOVA, R.B.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 174-92

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIC GROUP, NMR SPECTRUM, METAL COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1652

STEP NO--UR/0192/70/011/001/0174/0192

CIRC ACCESSION NO--AP0125274

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125274

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF THE NMR SPECTROSCOPIC
DATA PERTAINING TO CYCLOPENTADIENYL DERIVS. OF NON TRANSITION METALS OF
PERIOD 5 AND 6 IS PRESENTED. 80 REFS. FACILITY: INST.
ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PROTON MAGNETIC RESONANCE OF DIVINYLMETHANE AND VINYLALLYLMETHANE
DERIVATIVES -U-
AUTHOR--(02)-VASILYEVA, T.T., FEDIN, E.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 22-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PROTON, MAGNETIC RESONANCE, VINYL COMPOUND, METHANE,
METHYLENE, HYDROXYL RADICAL, CHLORINZATED ORGANIC COMPOUND,
ORGANIC SULFUR COMPOUND, NMR SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/1620 STEP NO--UR/0062/70/000/001/0022/0025
CIRC ACCESSION NO--A20100230
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NMR SPECTRA WERE REPORTED IN
DETAIL FOR CH SUB2:CHCHRCH:CH SUB2 WHERE R EQUALS CH:CH SUB2, CH SUB2 CH
SUB2 OH, CH SUB2 CH SUB2 CL, CH SUB2 CH SUB2 SPH; CH SUB2:CHCH
SUB2NEGATIVE CHRCH:CH SUB2 WHERE R EQUALS CH SUB2 OH, CH SUB2 CL, CH
SUB2 SPH, OR CD SUB2 H. THE NMR SIGNALS USEFUL FOR SPECIFIC
IDENTIFICATION AND DETN. OF SUCH COMPOS. IN A MIXT. ARE DISCUSSED.
THE ALLYLIC METHYLENE GROUP SIGNAL IS VERY USEFUL, MAKING POSSIBLE ITS
DETECTION IN 1-2PERCENT AMTS. IN MIXTS.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--HOMOLYTIC ADDITION OF THIOPHENOL TO TRIVINYLMETHANE AND RELATED
COMPOUNDS -U-
AUTHOR--VASILYEVA, T.T., FEDIN, E.I., FREDLLINA, R.KH.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 100-6
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DEGRADATION, THIOL, PHENOL, NUCLEAR MAGNETIC
RESONANCE, VINYL BENZENE, CHLORINATED ORGANIC COMPOUND, CYCLOPROPANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1071 STEP NO--UR/0052/70/000/001/0100/0106

CIRC ACCESSION NO--AP0104469
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 0.94 G HC(CH:CH SUB2) SUB3 WITH 1.1 G PSH AND 5 MOLE PERCENT BZ SUB2 O SUB2 10 HR AT 80DEGREES IN A SEALED TUBE GAVE 73PERCENT 5,PHENYLTHIO,3,VINYL,1,PENTENE (I), B SUB2 104DEGREES, N PRIME2 SUBDDEGREES 1.5541, D PRIME20 0.9864, PH SUB2 S SUB2, AND STARTING MATERIALS; NMR EXAMN. SHOWED THE PRESENCE OF SOME CYCLOPROPANE.DERIVS. I AND PSH UNDER THESE CONDITIONS IN 10 HR GAVE 30PERCENT CH SUB2:C(CH SUB2 CH SUB2 SPH) SUB2 B SUB1 188DEGREES, 1.6030, 1.0928. 5,CHLORO,3,VINYL,1,PENTENE AND PSH SIMILARLY TREATED GAVE 60PERCENT CH SUB2:C(CH SUB2 CH SUB2 CL)CH SUB2 CH SUB2 SPH, B SUB2 130DEGREES, 1.5653, 1.0944. 1,CHLORO,3,VINYL; 5,PHENYLTHIOPENTANE AND PHSNA IN ETOH 1 HR AT 70DEGREES GAVE 82PERCENT 3,VINYL,1,5,BIS (PHENYLTHIO)PENTANE, B SUB2 207DEGREES, 1.6037, 1.0917. ALSO REPORTED WERE (CH SUB2:CH) SUB2 CHCH SUB2 CH SUB2 CL, B SUB60 66DEGREES, 1.4525, 0.9167, CH SUB2:CHCH SUB2 CH(CH SUB2 OH) CH:CH SUB2 B SUB11 59DEGREES, 1.4560, 0.8655; CH SUB2:CHCH SUB2 CH(CH SUB2 CL)CH:CH SUB2 B SUB74 76DEGREES, 1.4549, 0.9223; CH SUB2:CHCH SUB2 CH(CH:CH SUB2)CH SUB2 SPH, B SUB1 90DEGREES, 1.5570, 0.9916.

UNCLASSIFIED

USSR .

UDC: 681.3.325

ROZENBLAT, M. A., FEDIN, G. V., "Order of Lenin" Institute of Control Problems (Automation and Remote Control)

"A Magnetic Adaptive Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329672, Division H, filed 5 May 70, published 9 Feb 72, p 225

Translation: This Author's Certificate introduces a magnetic adaptive element which contains a three-aperture transfluxor with control winding in the large aperture, and with suppression, read and output windings in the small apertures. The element also contains two toroidal shaping cores with coupling, adaptation and ready windings. The ready windings are connected in series with the read windings of the transfluxor. As a distinguishing feature of the patent, the number of supply sources is reduced and the element is simplified by adding a compensation core with ready windings connected in series with the ready windings of the transfluxor and in opposition with each other, a compensation winding connected in series with the coupling windings of the shaping cores, and an output winding which is connected in opposition relative to the output winding of the transfluxor. The

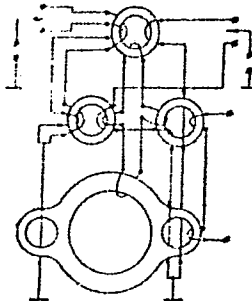
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USSR

ROZENBLAT, M. A., FEDIN, G. V., USSR Author's Certificate No 329672

read windings of the transfluxor are connected in opposition with each other, and each is connected in series with one of the ready windings of the compensation core. Each of the shaping windings contains two adaptation windings connected in opposition, like adaptation windings of the cores being connected in series. The windings are connected together at the output of the second shaping core, and the suppression winding of the transfluxor is connected by one end to the tiepoint between the windings.



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USSR

UDC 681.325.65

ROZENBLAT, M. A., SEMENENKO, V. A., and FEDIN, G. V.

"Magnetic Element With Adaptable Transmission Factor"

USSR Author's Certificate No 276158, Filed 14/05/69, Published 8/10/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B187P)

Translation: The element with adaptable transmission factor suggested relates to the area of automation and computer technology and can be used in those cases in which a binary variable X must be multiplied by the value of a coefficient K , which in the process of adaptation may take on any required value within the limits $-1 < K < +1$, after which it remains unchanged. There are well-known elements (E) with adaptable transfer coefficients which are based on 2 3-hole transfluxors (T), performing the function of recording transfer factor K , and 2 toroidal magnetic cores, forming control voltage pulses with fixed volt-second area in order to provide the required change in residual magnetic flux in the T and, consequently, the value of the transmission factor of the E . The purpose of this invention is to simplify the E and increase its reliability.

1/2

USSR

ROZENBLAT, M. A., et al., USSR Author's Certificate No 276158, Filed 14/05/69, Published 8/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Tele-mekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B187P)

In the E suggested, this is achieved by series connection of the windings for preparation of the toroidal cores and the read windings of the T. When the input binary variable reaches the E, this makes it possible to commute only one circuit consisting of the series-connected windings mentioned above, by feeding or blocking monopolar pulses of input variable X. Furthermore, it is convenient using this element to perform reading with asymmetrical current pulses, allowing simpler 2-hole T to be used in the E. 1 fig.

2/2

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USSR

UDC: 621.317.3(088.8)

KARAU'NIK, M. Ye., MAKEYEV, V. I., ALEKSANDROV, A. F., LEBEDEV, B. M.,
METELITSIN, I. V., PLATONOV, F. V., FEDIN, V. F.

"A Device for Measuring the Electrical Parameters of Piezoelectric
Resonators"

USSR Author's Certificate No 264547, filed 5 Jul 68, published 17 Jun 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A315 P)

Translation: It is pointed out that conventional devices for measuring
the electrical parameters of piezoelectric resonators do not allow for
direct measurement of piezoelectric current. In the proposed device there
is a special coil with an auxiliary indicator whose scale is graduated in
piezoelectric current values. The resonator to be tested is placed inside
the coil. E. L.

1/1

USSR

UDC 577.3

FEDIN, VA. A., KOZLOV, YU. P., and TARUSOV, B. N., Chair of Biophysics,
Moscow State University

"Superweak Light Emission During Thermal Muscle Contraction"

Moscow, Vestnik Moskovskogo Universiteta, Seriya 6, Biologiya, Pochvovedeniye,
No 6, Nov/Dec 71, pp 108-110

Abstract: It has been demonstrated that when muscle tissue in a humid chamber is heated, the intensity of superweak emission (chemiluminescence) increases. The connection between a fixed level of superweak emission and the changes that occur in it during heat-induced irreversible loss of excitability in the sartorius muscles of *Rana temporaria* and *Rana ridibunda* (two species of frogs with different degrees of thermal sensitivity) was studied. When the prepared muscle tissue, which had been soaked in Ringer's solution, was heated from 20°C to 38°C, the intensity of luminescence increased uniformly for both species. In the interval from 38°C to 50°C, it increased sharply for *Rana ridibunda* but leveled out for *Rana temporaria*. It was also established that greater intensities of luminescence occurred if the muscles were soaked for longer periods in Ringer's solution and if this solution itself were heated. Furthermore, an increase in intensity of luminescence occurred at lower temperatures for muscles which had been soaked in Ringer's solution than in freshly prepared muscle tissue.

1/1

USSR

UDC 629.12.002.3:691.3

MISHUTIN, V. A., FEDIN, YE. I., YAKOVLEVA, R. V.

"The Influence of Steam-Drying Regimes Upon the Strength and Frost Resistance of Shipbuilding Concrete"

Leningrad, Sudostroyeniye, No 12, 1970, pp 12-14.

Abstract: An investigation is made of the possibility of a considerable increase in the strength, longevity (100 years and more), and frost resistance of shipbuilding concrete due to optimization of the steam-drying regimes in the production of thin-walled reinforced-concrete ship structures. 1 figure, 4 tables.

1/1

USSR

UDC: 681.335.8

EPSHTEYN, L. Ye., FEDIN, Yu. N., Institute of Automation and Remote Control (Technical Cybernetics)

"A Device for Realizing Functional Relations"

USSR Author's Certificate No 318960, filed 16 Dec 69, published 24 Jan 72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7B497 P)

Translation: The invention can be used in analog technology, particularly in realizing blocks with transfer characteristics which are controllable over a wide range with respect to time or input signal parameters. A voltage-controlled device is known for realizing functional relations based on a photoresistor. However, the method used for constructing the controllable elements in the conventional device limits the range of realizable functions by the use of only differential (binary) photoresistors. Besides this, due to the considerable technological spread of parameters of the photoresistors, the beads must be individually selected in the conventional device when constructing a given module. The purpose of the invention is to eliminate the initial technological sorting

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USSR

EPSHTEYN, L. Ye., FEDIN, Yu. N., USSR Author's Certificate No 318960

of photoresistors and to use practically any type of serially produced industrial photoresistors, thus increasing accuracy and extending the limits of the functional possibilities of the device. This goal is achieved by connecting the functional converter between the photoresistor and one of the inputs of the comparison module. This functional converter is a high-frequency circuit for monitoring and transforming the value of the photoresistor. The circuit contains an oscillator whose frequency is outside the frequency band of the input signal, a transformer-transducer, an AC amplifier, and a high-linearity detector. In realization of the device, a procedure is used which is analogous to the method of probe action in which an additional high-frequency loop is introduced into the main system to obtain information on the state of the object and produce optimum controlling actions which guarantee a position of the characteristic of the object which is close to the required point.

2/2

- 16 -

USSR

UDC 666.764.13:621.9.048.6

BORISOVA, A. YU., ZIN'KO, E. I., and FEDINA, I. V., State Scientific Research Institute of Electroceramics

"Effect of a Vibratory Mill on the Sintering and Properties of Magnesium Oxide"

Moscow, Ogneupory, No 3, Mar 71, pp 57-60

Abstract : Each year the requirements for parts made of pure oxides for use at high temperatures increase. The manufacture of parts made of magnesium oxide presents isgnificant difficulties due to its tendency to hydration and the high sintering temperature required (1800-2000°C). The authors of this article produced a highly refractory material from magnesium oxide and developed the technology of producing vacuum-tight parts of complex configuration from this material by means of pressure casting. They also studied the effect of vibratory mills on sintering and the properties of chemically pure magnesium oxide. It was found that processing in a vibratory mill lowers the full sintering temperature of magnesium oxide from 1950 to 1850°C, and
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BORISOVA, A. YU., et al., Ogneupory, No 3, Mar 71, pp 57-60

increases density and strength. Vibratory processing of magnesium oxide makes it possible to produce a uniform thermo-plastic dross for hot pressure casting and to significantly decrease the content of binder in it. Magnesium oxide vibrated for 1.5 minutes is distinguished by high specific volume, electrical strength and vacuum density, and by a small tangential angle of dielectric loss.

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105768w Modulation of the Q-factor of a molecular gas laser by using saturating filters. Losev, V. V.; Papulovskii, V. F.; Fedina, T. A. (USSR). *Opt. Spektrosk.* 1970, 28(2), 420-1 (Russ). For modulation of laser irradiation, a cell filled with C_2H_4 was used as a satg. filter; C_2H_4 had an absorption band in the region of irradiation frequency of laser 940-60 cm. Generation of sequence of normal irradiation impulses was obtained. Their duration and repetition were changed in dependence on parameters of the active medium and C_2H_4 pressure. The optimal operation conditions were 3.5 torr of C_2H_4 and 25-30 mA. Under these conditions, the duration of the impulses $\leq 10 \mu\text{sec}$. The rearrangement of the equipment enabled obtaining the impulse irradiation of the lines P-12 to P-26. The max. output was with the P-20 line. The pressure of admixt. (He, N, CO_2 , SF_6) influenced significantly parameters of the generation of the impulses. The obsd. oscillogram was quite complicated, which was caused by both complexity of active medium and flexibility of gas filter. M. Tichy

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UDC 620.17:669.71

VASILEVSKIY, KH., G., and FED'KINA, S. A.

"Anisotropic Characteristics of the AK6 Alloy"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov,
No 8, 1970, pp 65-66

Abstract: An investigation was made of the effect of thermal processing on the structural nonuniformity and the mechanical characteristics of the AK6 alloy. Rods 150 mm in diameter, with nonuniform structure over their cross section after tempering from 520° C and subsequent aging at 160° C, were tested. Their inner layers, to a depth of 12 mm, had a coarse crystalline structure, with a finer structure in the inner layers. To determine the effect of various types of thermal processing on the nonuniformities of the castings, the rods were cut into six equal segments, five of which were processed in various ways. Table gives the details of the processing for all six of the segments and its effect on the outer layers and inner core. The macro- and microstructures of all six segments were also examined. It was found that reduction of the hardening temperature from 520° + 5° C to 500 + 5° C delays the appearance of the coarse-crystalline ring with conservation of the high durability.

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UDC 632.951+632.78

KOKOT, O. P., and FED'KO, I. A., All-Union Scientific Research
Institute for Corn, Dnepropetrovsk, All-Union Academy of Agricultural
Sciences imeni V. I. Lenin

"Use of Organophosphorus Compounds Against Pyrausta Nubilalis"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 5, May 70, pp 27-29

Abstract: Dusting of corn with chloroorganic compounds proved effective in the control of Pyrausta nubilalis Hb. damaging this crop. Because of the toxicity of DDT, heptachlor, and some other chloro derivatives to humans and warm-blooded animals, tests were conducted to determine whether organophosphorus compounds and the carbamate sevin could be used against this insect pest in corn fields. The results of the tests showed that the organophosphorus insecticides Bi 58 and carbophos were ineffective in reducing the number of Pyrausta nubilalis larvae on corn, while sevin, metaphos, and chlorophos were highly effective. The best results were obtained by treating the crops at the time of the mass appearance of larvae and then again 7-10 days later.

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UDC 533.932

GRECHKO, L. G., KOTSARENKO, N. Ya., ~~FEDORCHENKO, A. M.~~

"Electromagnetic Wave Fluctuations in a Plasma Layer"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 11, 1971, pp 1771-1776

Abstract: Although most papers on the theory of fluctuation phenomena in plasmas consider the case of the unlimited plasma, the authors of the present article consider the limited plasma case to be equally interesting from the experimental point of view, since the probes and recording devices are usually outside the plasma. The electromagnetic waves they are examining are slow, and in this theoretical examination they neglect the spatial dispersion. This latter is unimportant for waves propagated with a phase velocity greater than the thermal velocity of the electrons. Using the method of an earlier paper (N. Ya. Kotsarenko and A. M. Fedorchenko, UFZh, 12, 1967, p 1533), the authors obtain correlation functions for finding the spectrum of surface

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GRECHKO, L. G. et al, Ukrainskiy Fizicheskiy Zhurnal, Vol 16,
No 11, 1971, pp 1771-1776

wave fluctuations. The present article is essentially a continuation of the earlier article cited, in which the correlation functions for a semiinfinite plasma were found and in which it was shown that the presence of a limit leads to surface electromagnetic wave fluctuations within the frequency limits of $0 < \omega < \omega_p / \sqrt{2}$, where ω_p is the plasma Langmuir frequency.

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1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CRITERION OF AN ABSOLUTE AND CONVECTIVE INSTABILITY, AND TRANSITION
OF ABSOLUTE INSTABILITY INTO A CONVECTIVE ONE -U-
AUTHOR-(02)-KOTSARENKO, N.YA., FEDORCHENKO, A.M.
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF A CRITERION FOR CLASSIFYING INSTABILITIES AS ABSOLUTE OR CONVECTIVE. AS AN EXAMPLE ILLUSTRATING THE USE OF THIS CRITERION, A DISCRETE EQUATION FOR THREE COUPLED WAVES IS EXAMINED. IT IS SHOWN THAT BY INTRODUCING DAMPING IT IS POSSIBLE TO CONVERT THE ABSOLUTE INSTABILITY INTO A CONVECTIVE ONE.

FACILITY: KIEVSKII GOSUDARSTVENNYI UNIVERSITET, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

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UDC 539.433:621.454

GLEYZER, A. I., FEDORCHENKO, G. P.

"Probabilistic Estimation of the Aerodynamic Disbalance of Aircraft Gas Turbine Engine Rotors"

Kazan', Izvestiya Vysshykh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 3, 1970, pp 86-93

Abstract: A method is presented for determining a component of the total disbalance of the rotors of aircraft gas turbine engines -- aerodynamic disbalance, brought about by errors in manufacture of the working blades of compressors and turbines. Determination of the level of the exciting forces acting upon a working rotor is necessary for a soundly based approach to the designing of damping devices. 1 table, 3 figures, 3 bibliographic entries.

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USSR

UDC 669.018.95

SLYS', I. G., PEREPELKIN, A. V., and FEDORCHENKO, I. M., Institute Problems of Material Science, Academy of Sciences Ukrainian SSR

"Structure and Properties of a Sintered Stainless Steel Containing Molybdenum Disulfide"

Kiev, Poroshkovaya Metallurgiya, No 9, Sep 73, pp 24-29

Abstract: The structural and phase properties and the physical and mechanical changes determined by them were studied when occurring in the sintering of steel Kh23N18 which contained from 10 to 50 wt% MoS₂. It was established that in sintering a composite in a medium which ensures high thermal stability of MoS₂ (such as dry argon), intensive diffusion interaction of the alloy elements and MoS₂ occurs with the formation of a heterogeneous structure consisting of iron and chromium sulfides and intermetallides and carbides. It was observed that a sharp change in the physical and mechanical properties of a sintered composite, upon increasing the MoS₂ above 50 vol%, was associated with the development of a new type structure in the material. It was established that, although the method of dynamic hot pressing ensures preservation of a significant amount of MoS₂ in the structure of the material, its hardness rises sharply. 2 figures, 4 tables, 16 bibliographic references.

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USSR

UDC 621.735

SLYS*, I. G., FEDORCHENKO, I. M., YERMAKOVA, YE. N., and FUSINA, L. I.,
Institute of Problems of Material Science, Ukrainian SSR Academy of Sciences

"Investigation of the Process of Sulfurization of Cermet Stainless Steels:
Report II"

Kiev, Poroshkovaya Metallurgiya, No 4, Apr 73, pp 37-43

Abstract: A new method of sulfurization of sintered materials is proposed and investigated. It is shown that for the process of sulfurization of stainless steels it is necessary to create conditions which will promote interaction of sulfur with alloy components. The conditions which increase reactivity of the alloy components. The conditions which increase reactivity of the alloy are: very long reaction surface, high concentration of defects of the crystalline structure, and heterogeneity of alloy microvolumes according to the chemical composition. The combination of sintering with sulfurization allows reduction of the temperature of sintering by 250-300°C. It is shown that sintered (in the presence of sulfur at 950°C) stainless porous steel is highly corrosion and wear-resistant during bearing contact.

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Coatings

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UDC 621.357.7:660

FEDORCHENKO, I. M., GUSLIYENKO, Yu. A., EPIK, A. P.

"Combined Nickel-Boron Electrolytic Coatings"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 31-34.

Abstract: This article studies combined nickel coatings with improved physical and mechanical properties. It is shown to be possible to produce combined Ni-B coatings with even distribution of boron particles through the volume of the matrix. Diffusion annealing of these coatings results in the formation of qualitatively new structures and increased physical and mechanical properties. The wear resistance of heat-treated Ni-B coatings is equal to or better than the wear resistance of hard chromium electrolytic coatings.

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